JTC-C200

SONY

3-864-848-**11** (1)

JumboTron Image Control System

Operating Instructions
Before operating the unit, please read this manual thoroughly and retain it for future reference.

JumboTron

JTC-C200 ICU Controller
JTC-P200 Image Control Unit
JTA-LS200 ABC Sensor Unit

© 1998 by Sony Corporation

1-1(E)

Sony Corporation Printed in Japan

Owner's Record
The model and serial numbers are located on the rear. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

For the customers in the U.S.A.
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For JTC-C200 and JTC-P200

Attention – when the product is installed in a rack:

- **Elevated operating ambient temperature**
  If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient.
  Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature of 0 to 45°C (Tmra).
- **Reduced air flow**
  Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical loading**
  Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit overloading**
  Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring.
  Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable earthing**
  Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

Table of Contents

Overview

About This Manual 4
Precautions 4
Overview of the JumboTron System 5
Images to be displayed on the JumboTron screen 5
Structure of the JumboTron screen 6
Configuration of the JumboTron system 7
Features 8

Locations and Functions of Parts and Controls

Locations and Functions of Parts and Controls 9
JTC-P200 ICU (Image Control Unit) 9
JTC-C200 ICU controller 11
JTA-LS200 ABC sensor unit 13

Connections

Connections 14
JumboTron system configuration 14
Setting the ID number of the JTC-C200 ICU controller 15

Operation

Displaying Images on the Screen 16
Preparing the system 16
Displaying images 16
Checking the operation time 18
Selecting the brightness of the screen 19
Selecting the picture size/shift on the screen 20
Setting the type of the video input signal 21
Menu Displays 22
Switching the normal display and the menu display 22
Main menu items 22
Adjusting the Brightness of the Screen 23
Adjusting the brightness 23
Adjusting the brightness automatically (Auto Brightness Control) 24
Adjusting and presetting the brightness 25
Adjusting the Picture on the Screen 27
Controlling the Equipment Connected to the ICU 29
Getting Information about the Input Signal 30

Others

Troubleshooting 31
Specifications 32

About This Manual

This instruction manual is aimed at the ICU operator and it explains how to display the images on the JumboTron screen using the JTC-P200 ICU (Image Control Unit) and the JTC-C200 ICU controller of the JumboTron system.
The operator is also required to have knowledge of image output equipment, such as VCRs, video cameras and computers. For the operation of these pieces of equipment, refer to their operation manuals. For the maintenance and adjustment of the JumboTron System, consult with qualified Sony service personnel.

Precautions

On safety

- Do not forcibly bend the power cord. Do not place or drop any heavy object on it. If the power cord has been damaged, a fire or electric shock hazard may occur.
- To disconnect the power cord, pull it out by the plug. Never pull the cord itself.
- Do not use a damaged power cord.
- Do not drop any liquid or solid object into the cabinet.
- Do not open the cabinet.
- Do not use or leave the unit at extremely high or low temperatures.
- Do not use or leave the unit in high humidity.

On cleaning

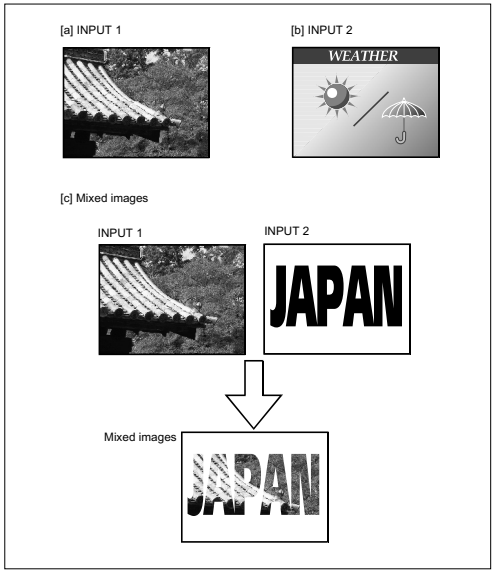
- Clean the case and front panel with a dry soft cloth, or a soft cloth slightly moistened with a mild detergent solution. Do not use any organic solvents, such as alcohol or benzine which might damage the finish.
- Be sure to unplug the unit before cleaning.

Overview of the JumboTron System

The JumboTron system displays video images on a large screen (JumboTron screen) located either outdoors or indoors. Images from video sources such as a VCR, video camera and computer can be displayed on the screen.
The JumboTron system provides superb bright images with high resolution, regardless of whether it is day or night, indoors or outdoors.

Images to be displayed on the JumboTron screen

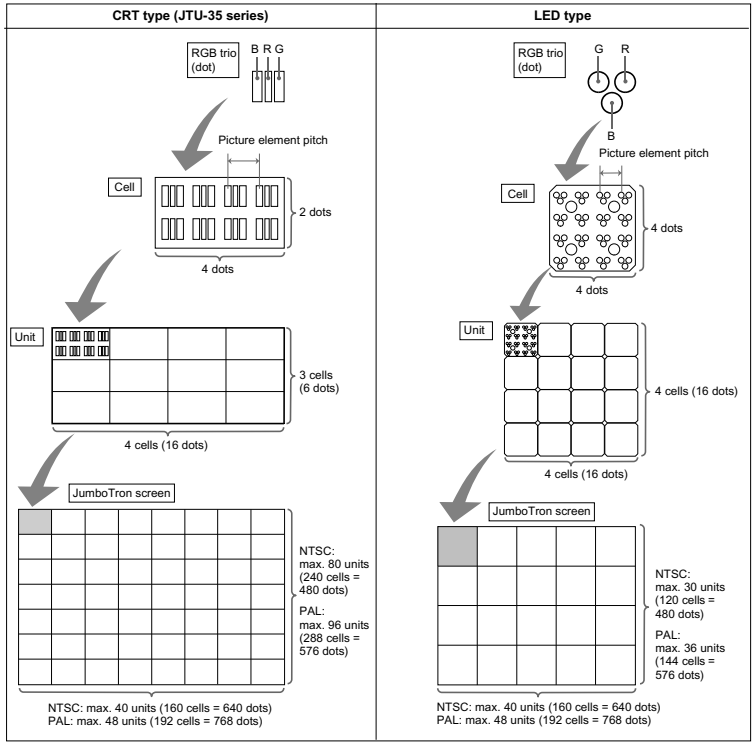
The JumboTron system can display the following three types of images:
[a] Video images input from equipment such as a VCR, video camera and video disc (INPUT 1)
[b] Computer graphics (INPUT 2)
[c] Mixed images of INPUT 1 and INPUT 2
(INPUT 1 images are superimposed on the monochrome area of the INPUT 2 images.)



Overview of the JumboTron System

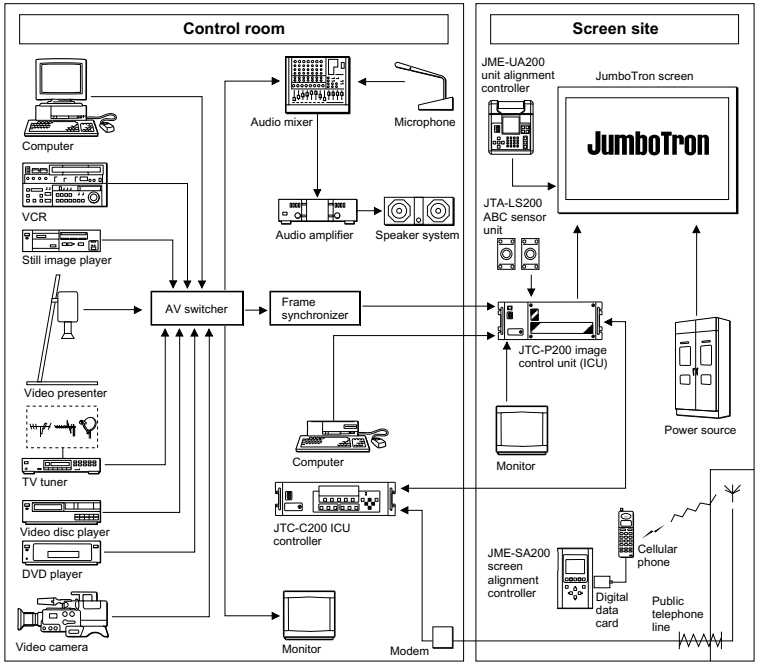
Structure of the JumboTron screen

Two types of the JumboTron screen are available. One is the conventional CRT type screen in which light emitting bodies of three primary colors (R, G and B), "Trinilite," are used as the light emitting element. The other is the new LED type screen in which light emitting diodes of the three primary colors are used.
The basic element of the JumboTron screen is an RGB trio (dot).
A "cell" consists of the dots arranged at a certain interval (picture element pitch) and a "unit (JumboTron display unit)" consists of 12 cells for the CRT type and 16 cells for the LED type.
There are three unit types, the JTU-35 series (with 35-mm picture element pitch) and JTU-17 series (with 17.5-mm pitch) of the CRT type, and the LDU-15 series (with 15-mm pitch) of the LED type. You can configure a large JumboTron screen by arranging the JumboTron display units vertically and horizontally to suit various uses or locations.


CRT type (JTU-35 series)
LED type
RGB trio (dot)
B R G
G R
B
Picture element pitch
Cell
2 dots
4 dots
Unit
3 cells (6 dots)
4 cells (16 dots)
JumboTron screen
NTSC: max. 80 units (240 cells = 480 dots)
PAL: max. 96 units (288 cells = 576 dots)
NTSC: max. 40 units (160 cells = 640 dots)
PAL: max. 48 units (192 cells = 768 dots)
NTSC: max. 30 units (120 cells = 480 dots)
PAL: max. 36 units (144 cells = 576 dots)

Configuration of the JumboTron system

The following is the suggested configuration of the JumboTron system.



Features

JTC-C200 ICU controller

The JTC-C200 ICU controller is the remote controller for the JTC-P200 ICU (Image Control Unit) which controls the images on the JumboTron screen. Using the ICU controller, you can control the ICU from a control room at a distance of up to 500 m (1640 feet). The main functions of the JTC-C200 are as follows:

Turning on/off the ICU and screen
You can turn the ICU and the JumboTron screen on and off.

Selection of screen display mode
You can select the images to be displayed on the JumboTron screen from among three modes: INPUT 1 (video images), INPUT 2 (computer graphics) and MIX (mixed images).

Adjustments of the images on the screen
You can adjust the brightness, hue, color and sharpness of the images on the screen.
The brightness can be automatically adjusted according to the ambient light with the JTA-LS200 ABC sensor unit. You can also set the desired brightness level manually, and four brightness levels can be stored in the memory and recalled at a touch.

JTC-P200 ICU (Image Control Unit)

The JTC-P200 controls the images on the JumboTron screen.

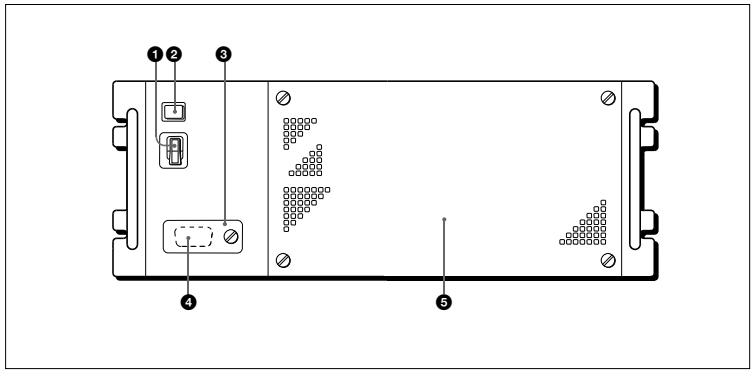
JTA-LS200 ABC sensor unit

The JTA-LS200 ABC (Automatic Brightness Control) sensor unit connected to the ICU senses the ambient light for the automatic brightness control.

Locations and Functions of Parts and Controls

JTC-P200 ICU (Image Control Unit)

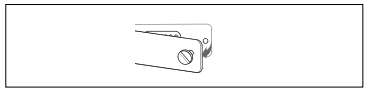
Front panel



❶ POWER switch
Turns the ICU on/off.

❷ Power lamp
Lights when the ICU is turned on.

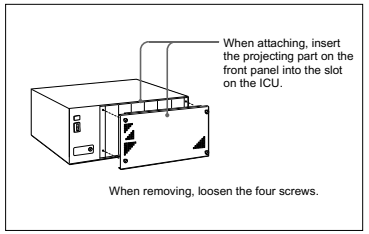
❸ Connector panel
The CONTROL 4 connector is inside. When using the connector, open the connector panel by loosening the screw.



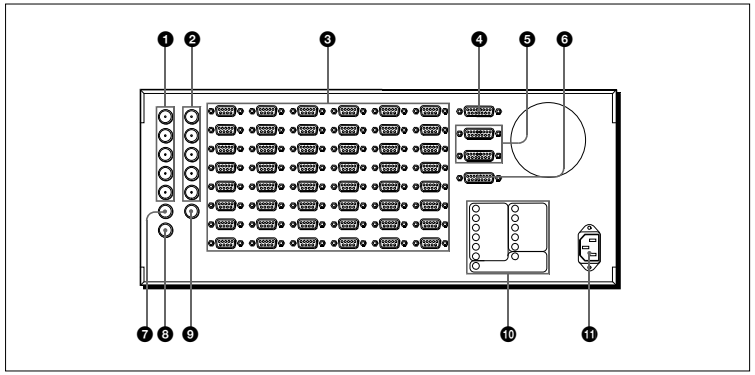
❹ CONTROL 4 connector (D-sub 15-pin)
This is an RS-422 input port. Connect it to peripheral equipment such as the JTC-C200 ICU controller for maintenance.

❺ Front cover
To remove the panel, loosen the four screws.

To remove/attach the front panel


When attaching, insert the projecting part on the front panel into the slot on the ICU.
When removing, loosen the four screws.

Rear panel



❶ INPUT 1 (R/R-Y, G/Y, B/B-Y, HD/COMP, VD) connectors (BNC type)
Connect to the AV switcher to which video equipment, such as VCRs and video cameras are connected.

❷ INPUT 2 (R, G, B, HD/COMP, VD) connectors (BNC type)
Connect to a computer.
If the computer has a H/V separate sync signal, connect it to the HD/COMP and VD connectors. If the computer has a composite sync signal, connect it to the HD/COMP connector only.

Note
When a computer with a sync signal on G-signal is connected and an external sync signal is input, the hue of the images may change. In this case, use the internal sync signal.

❸ SIGNAL OUT connectors (High-density D-sub 15-pin)
Connect to the JumboTron display units using the JCC-L10/L20/L30 connecting cable (not supplied).

❹ CONTROL 1/LS (sensor) connector (D-sub 15-pin)
Connect to the JTA-LS200 ABC sensor unit using the specified connecting cable (not supplied). The JTC-C200 ICU controller can also be connected to this connector.

❺ CONTROL 2 and CONTROL 3 connectors (D-sub 15-pin)
Connect to the JTC-C200 ICU controller.

❻ EXTERNAL CONTROL connector (D-sub 15-pin)
Connect to the power distribution panel of the system, etc.

❼ VIDEO IN connector (BNC type)
This is a composite video input connector.

❽ VIDEO OUT connector (BNC type)
This is a loop-through output for the VIDEO IN connector.

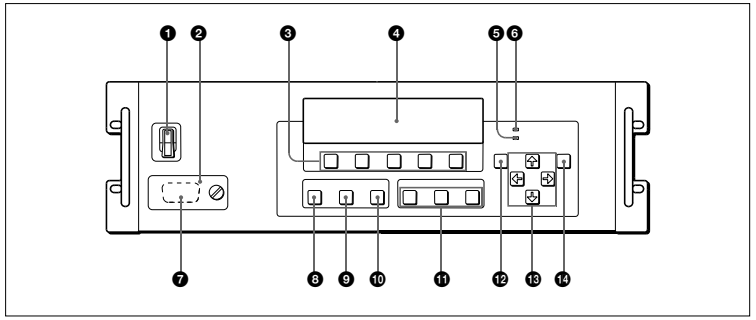
❾ MONITOR OUT connector (BNC type)
Connect to the video input connector of the video monitor.

❿ Input/output connector indications
Indicates the location of the input/output connectors at the right end of the rear panel.

⓫ AC IN connector
Connect to an AC power supply of 100 - 240 V AC. Use the supplied AC power cord which fits the AC outlet in your area.

JTC-C200 ICU controller

Front panel



❶ POWER switch
Turns the ICU controller on/off.

❷ Connector panel
The CONTROL 2 connector is inside. When using the connector, open the connector panel by loosening the screw.

❸ Function buttons (F1 – F5)
The functions of the buttons change with the stage of the operation. The current functions are indicated in the display window.
For details, see the chapter "Operation."

❹ Display window
Indicates the menus and the functions of the function buttons.

❺ REMOTE lamp
Currently not used. This is provided for future extended use.

❻ INFORMATION lamp
Lights when a screen abnormality is detected.

❼ CONTROL 2 connector (D-sub 15-pin)
Connect to the CONTROL connector of the JME-SA200 screen alignment controller for wired control.

❽ ICU power button and lamp
Hold down the button for more than a second to turn the power of the JTC-P200 ICU connected to the CONTROL 1 connector of the ICU controller on and off. The button lights when the ICU is turned on.

❾ SCREEN power button and lamp
Hold down the button for more than a second to turn the power of the screen on and off. The button lights when the screen is turned on.

❿ UTILITY button and lamp
Turns the power of the equipment connected to the EXTERNAL CONTROL connector on and off. The button lights when the connected equipment is turned on.

⓫ Display mode buttons and lamps
Selects the image mode to be displayed on the screen. The selected button lights.
INPUT 1: Displays the images selected via the AV switcher connected to the INPUT 1 connectors of the ICU.
INPUT 2: Displays the computer graphics from the computer connected to the INPUT 2 connectors of the ICU.
MIX: Displays the video images superimposed on the monochrome areas of the computer graphics.

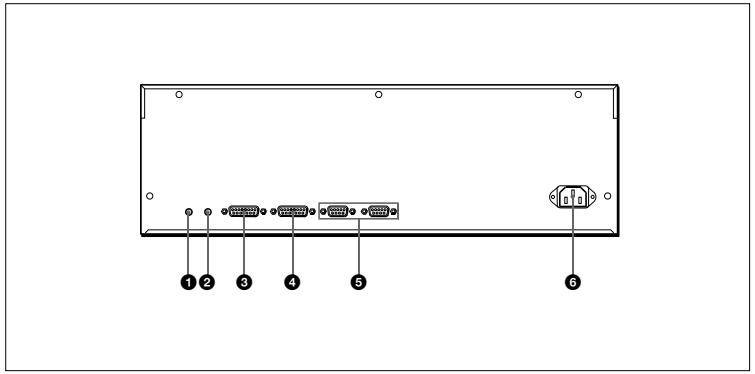
⓬ MENU button
Displays the menu in the display window or returns to the menu in the upper directory.

⓭ CURSOR ⇧/⇩/⇦/⇨ buttons
Selects the menu items in the display window or changes the set values.

⓮ ENTER button
Confirms the selected item and stores the set value.

Locations and Functions of Parts and Controls

Rear panel



❶ ID selector
When two or more ICU controllers are used in the system, set the ID number for each ICU controller.
For details, see page 15.

❷ MODE selector
This is provided for future extended use. Normally set to 0.

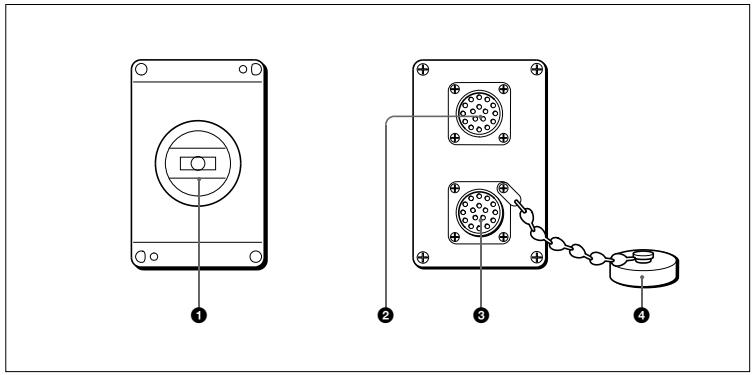
❸ EXTERNAL CONTROL connector (D-sub 15-pin)
Connect to the power distribution panel of the system.

❹ CONTROL 1 connector (D-sub 15-pin)
Connect to the CONTROL1, CONTROL 2, CONTROL 3 or CONTROL 4 connector of the ICU.

❺ COM1 and COM 2 connectors (D-sub 9-pin)
Connect to the computer or the modem.

❻ AC IN connector
Connect to an AC power supply of 100 – 240 V AC. Use the supplied AC power cord which fits the AC outlet in your area.

JTA-LS200 ABC sensor unit



❶ ABC (Automatic Brightness Control) sensor
Senses the ambient light.

❷ IN connector (Round type, 17-pin)
When two or more ABC sensor units are used in the system, connect the first sensor unit to the CONTROL 1/LS connector of the ICU. Connect the second sensor unit and others to the OUT connectors of other sensor units.

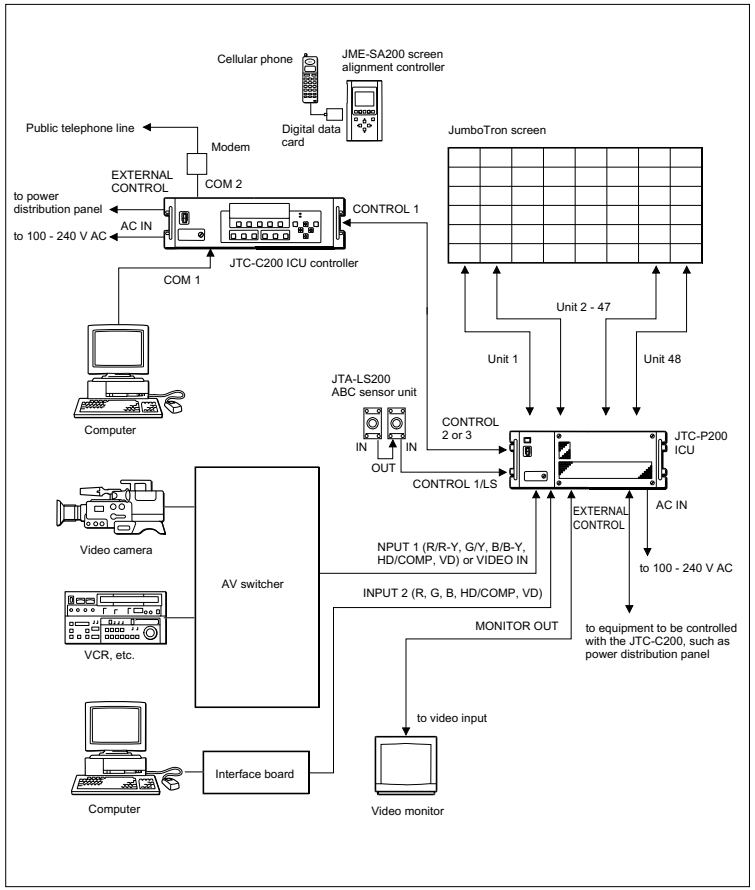
❸ OUT connector (Round type, 17-pin)
Connect to the IN connector of another ABC sensor unit.

❹ Connector cap
Put the cap on the OUT connector when it is not used.

Connections

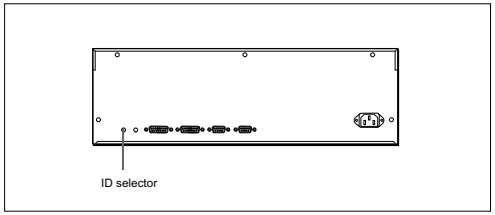
Turn off the power to all equipment when making the connections.
Check that the connectors are fully inserted before using.

JumboTron system configuration



Setting the ID number of the JTC-C200 ICU controller

When two or more JTC-C200 ICU controllers are used in the JumboTron system, set the individual ID number on each ICU controller with the ID selector on the rear panel. If the same ID number is set on two or more ICU controllers, the system does not operate correctly.



Displaying Images on the Screen

With the JTC-C200 ICU controller, you can select the images to be displayed on the JumboTron screen.

Preparing the system

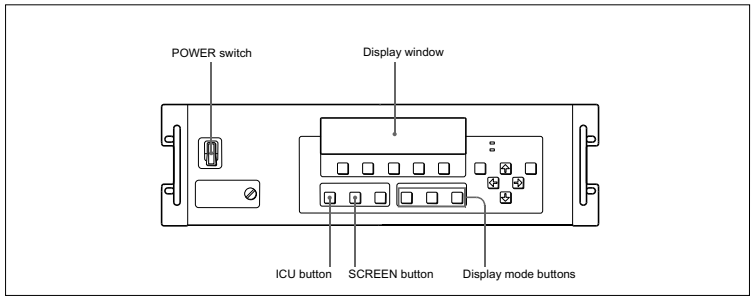
Do the following before remote control operation with the ICU controller:

1 Turn on the power switch on the power distribution panel which supplies the power to the JumboTron system.

2 Turn on the equipment which sends the images, such as VCRs and computers.

3 Press the I side of the POWER switch on the ICU to turn it on.

Displaying images

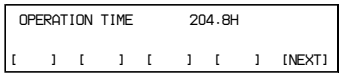


1 Press the I side of the POWER switch on the ICU controller to turn on the power of the ICU controller.

2 Hold down the ICU button for more than a second.
The button lights and the ICU turns on.

3 Hold down the SCREEN button for more than a second.
The button lights and the JumboTron screen turns on.
When the system has started, the normal display appears.

Normal display



4 Press the display mode button to select the images to be displayed on the screen.
The pressed button lights.

Press	To display
INPUT 1	Video images from VCR, video camera, etc.
INPUT 2	Computer graphics from the computer
MIX	Computer graphics with superimposed video images

Note

To display the video images by pressing the INPUT 1 button, set the type of the input signal correctly. If it is set incorrectly, the video images may be distorted.
For setting the type of the input signal, see page 21.

5 Operate the image output equipment to send the images.

6 Adjust the brightness, picture quality, picture size/shift on the screen.
To set to the preset brightness level, see "Selecting the brightness of the screen" on page 19.
To set to the preset picture size/shift, "Selecting the picture size/shift on the screen" on page 20.
For details on the brightness or picture quality adjustment, see "Adjusting the Brightness of the Screen" on page 23, and "Adjusting the Picture on the Screen" on page 27.

After use

1 Hold down the SCREEN button for more than a second to turn off the screen.
2 Hold down the ICU button on the ICU controller for more than a second to turn off the ICU.
(Normally keep the POWER switch on the ICU on.)
3 Stop the image sending by operating the image output equipment and turn it off.
4 Press the O side of the POWER switch on the ICU controller to turn off the ICU controller.
5 Turn off the power switch of the power distribution panel.

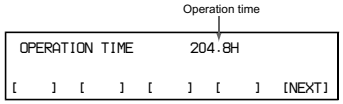
When the JumboTron system is not used for a long period of time
Make sure to turn off the whole system with the power switch on the power distribution panel.

Turning on the ICU again
Wait for more than three minutes before you turn it on again.

Displaying Images on the Screen

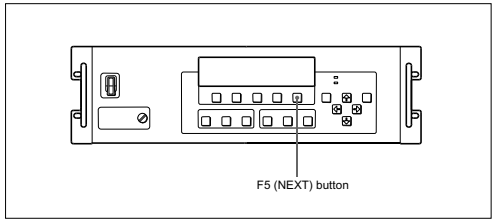
Checking the operation time

The operation time (OPERATION TIME) of the system is displayed on the normal display.



If the operation time does not appear in the display window

There are four normal displays, and you can select them with the F5 (NEXT) button. Press the F5 (NEXT) button repeatedly until the operation time appears.



To switch the normal displays

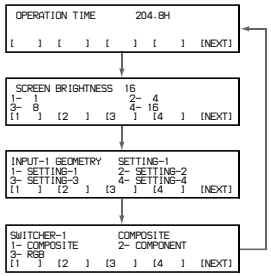
The following four displays appear in order by pressing the F5 (NEXT) button.

OPERATION TIME (operation time) display

SCREEN BRIGHTNESS (screen brightness select) display

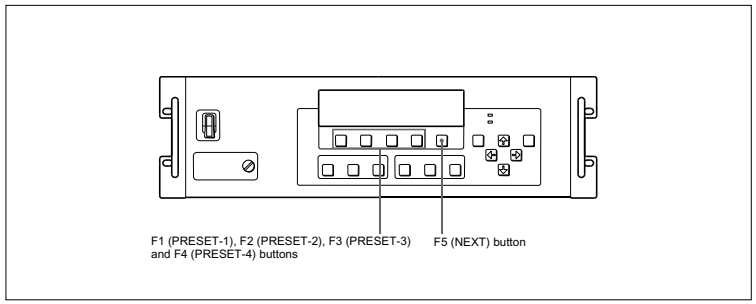
INPUT-1 GEOMETRY (INPUT-1 picture size/shift select) display

SWITCHER-1 (input video signal select) display

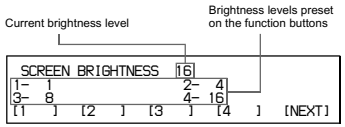

OPERATION TIME 204.8H
[ ] [ ] [ ] [ ] [NEXT]
SCREEN BRIGHTNESS 16
1– 1 2– 4
3– 8 4– 16
[1] [2] [3] [4] [NEXT]
INPUT-1 GEOMETRY SETTING-1
1– SETTING-1 2– SETTING-2
3– SETTING-3 4– SETTING-4
[1] [2] [3] [4] [NEXT]
SWITCHER-1 COMPOSITE
1– COMPOSITE 2– COMPONENT
3– RGB
[1] [2] [3] [4] [NEXT]

Selecting the brightness of the screen

You can set the brightness of the screen instantly by recalling one of the four preset brightness levels.



1 When the display window shows the normal display, press the F5 (NEXT) button repeatedly until the SCREEN BRIGHTNESS display appears.
The current brightness level and the brightness levels preset on the function buttons are shown on the display.



2 Press the F1, F2, F3 or F4 button to select the desired brightness level.

Press	To select
F1	Brightness level preset in PRESET 1
F2	Brightness level preset in PRESET 2
F3	Brightness level preset in PRESET 3
F4	Brightness level preset in PRESET 4

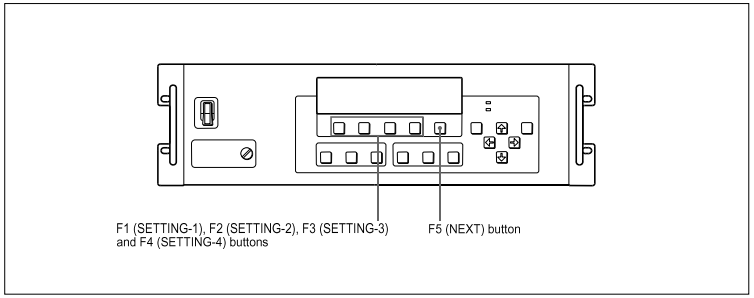
To change the preset brightness levels

See “Adjusting and presetting the brightness” on page 25.

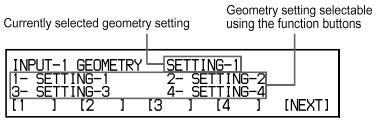
Displaying Images on the Screen

Selecting the picture size/shift on the screen

When you display the INPUT-1 images, you can set the picture size/shift (position) instantly by recalling one of the four preset geometry settings.



1 When the display window shows the normal display, press the F5 (NEXT) button repeatedly until the INPUT-1 GEOMETRY display appears.
The currently selected geometry setting (SETTING) and the settings which you can select using the function buttons are shown on the display.


Currently selected geometry setting
Geometry setting selectable using the function buttons
INPUT-1 GEOMETRY SETTING-1
1- SETTING-1 2- SETTING-2
3- SETTING-3 4- SETTING-4
[1] [2] [3] [4] [NEXT]

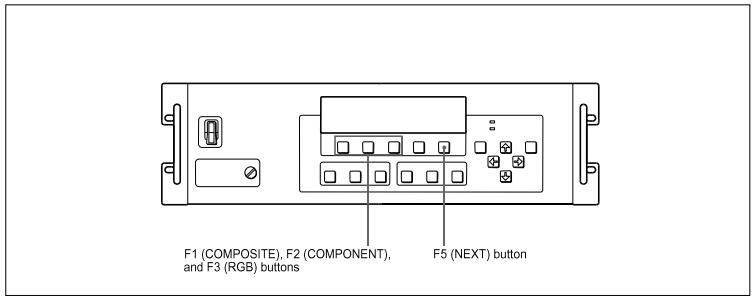
2 Press the F1, F2, F3 or F4 button to select the geometry setting on which the desired picture size/shift is preset.

Press	To select
F1	Picture size/shift preset on SETTING-1
F2	Picture size/shift preset on SETTING-2
F3	Picture size/shift preset on SETTING-3
F4	Picture size/shift preset on SETTING-4

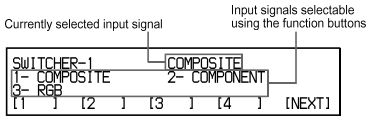
To change the preset picture size/shift values
Consult with qualified Sony service personnel.

Setting the type of the video input signal

Select the type of the video signal to be input from the VCR, video camera or other image output equipment.



1 When the display window shows the normal display, press the F5 (NEXT) button repeatedly until the SWITCHER-1 display appears.
The currently selected input signal and the input signals which you can select using the function buttons are shown on the display.


Currently selected input signal
Input signals selectable using the function buttons
SWITCHER-1 COMPOSITE
1- COMPOSITE 2- COMPONENT
3- RGB
[1] [2] [3] [4] [NEXT]

2 Press the F1, F2 or F3 button to select the type of the input signal.

Press	To select
F1	COMPOSITE (composite video) signal
F2	COMPONENT (component) signal
F3	RGB signal

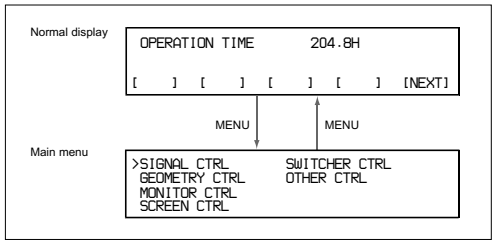
Menu Displays

In addition to the normal displays, this unit is provided with menu displays to be used for various adjustments.

Switching the normal display and the menu display

To change from the normal display to the menu display
When the display window shows the normal display, press the MENU button. The main menu appears.

To return to the normal display from the menu display
When the display window shows the main menu, press the MENU button.



Main menu items

The main menu items are used for the following adjustments.

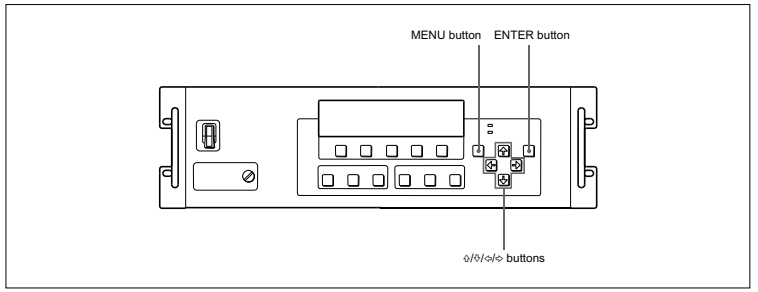
Item	Adjustment
SIGNAL CTRL*	Adjusts the signal.
GEOMETRY CTRL*	Adjusts the picture size and shift on the screen.
MONITOR CTRL*	Adjusts the video monitor connected to the ICU.
SCREEN CTRL*	Adjusts the picture quality on the screen. For details, see page 27.
SWITCHER CTRL*	Selects the signal to be adjusted.
OTHER CTRL*	Adjusts the screen brightness, etc. For the screen brightness adjustment, see page 23.

When you need to adjust the item marked with * , please consult with qualified Sony service personnel.

Adjusting the Brightness of the Screen

Adjusting the brightness

This section explains the basic brightness adjustment operations. The brightness of the screen can be adjusted by 16 levels.



1 When the display window shows the normal display, press the MENU button.
The main menu appears.

```
>SIGNAL CTRL        SWITCHER CTRL
 GEOMETRY CTRL      OTHER CTRL
 MONITOR CTRL
 SCREEN CTRL
```

2 Press the ⇩ or ⇧ button to move the cursor (>) to SCREEN CTRL (screen control), and press the ENTER button.
The SCREEN CTRL submenu appears.

```
>INFO
 BRIGHTNESS
 MIXLEVEL
 COLOR MATRIX
```

3 Press the ⇩ or ⇧ button to select BRIGHTNESS, and press the ENTER button.
The BRIGHTNESS menu appears.

```
>BRIGHTNESS : 16
 AUTO BRIGHTNESS : OFF
```

4 Press the ⇩ or ⇧ button to select BRIGHTNESS, and press the ⇦ or ⇨ button to adjust the brightness level.
The brightness level is adjustable in a range of 1 – 16. The higher the level is, the brighter the screen becomes.

Adjusted brightness level

```
>BRIGHTNESS : 14
 AUTO BRIGHTNESS : OFF
```

Adjusting the Brightness of the Screen

5 Press the ENTER button.
"SAVE" is displayed for about one second, and the adjusted brightness is stored in the memory.

6 To finish the brightness adjustment, press the MENU button repeatedly until the normal display appears in the display window.

Note

After adjusting the brightness in step 4 above, do not press the MENU button before pressing the ENTER button. If you do, the adjusted brightness is not stored in the memory.

Adjusting the brightness automatically (Auto Brightness Control)

By using the optional JTA-LS200 ABC sensor unit, the JumboTron system is automatically adjusted to the proper brightness according to the ambient light.

1 Perform steps 1 to 3 of "Adjusting the brightness" on page 23 to display the BRIGHTNESS menu.

```
>BRIGHTNESS : 16
 AUTO BRIGHTNESS : OFF
```

2 Press the ⇩ or ⇧ button to select AUTO BRIGHTNESS, and press the ⇦ or ⇨ button to display ON.

Display ON.

```
 BRIGHTNESS : 16
>AUTO BRIGHTNESS : [ON]
```

3 Press the ENTER button.
"SAVE" is displayed for about one second, and the setting is stored in the memory.
The Auto Brightness Control function is now activated.

4 To finish the setting, press the MENU button repeatedly until the normal display appears in the display window.

If the ABC sensor unit is not connected correctly

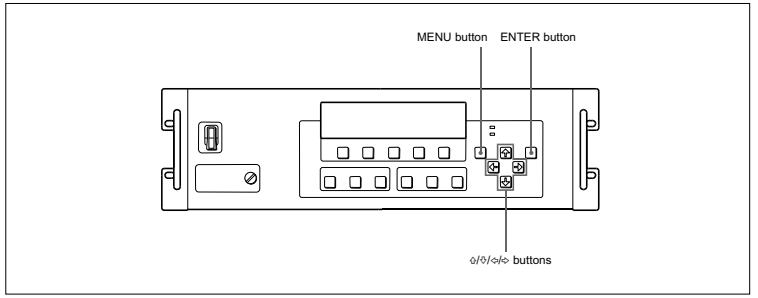
The Auto Brightness Control does not function correctly even if AUTO BRIGHTNESS is set to ON. Check the connection of the ABC sensor unit.

To cancel the Auto Brightness Control function

Repeat the steps above, and set AUTO BRIGHTNESS to OFF in step 2.

Adjusting and presetting the brightness

You can preset up to four brightness levels for the images you display frequently. The preset brightness levels can be recalled at a touch.



1 When the display window shows the normal display, press the MENU button.
The main menu appears.

```
>SIGNAL CTRL       SWITCHER CTRL
 GEOMETRY CTRL     OTHER CTRL
 MONITOR CTRL
 SCREEN CTRL
```

2 Press the ⇩ or ⇧ button to move the cursor (>) to OTHER CTRL (other control), and press the ENTER button.
The SETTING/SERVICE select menu appears.

```
>SETTING
 SERVICE
```

3 Press the ⇩ or ⇧ button to select SETTING, and press the ENTER button.
The SETTING submenu appears.

```
>SCREEN
 LUMINANCE SENSOR
 UTILITY
 PRESET
```

(continued)

Adjusting the Brightness of the Screen

4 Press the ⇩ or ⇧ button to select PRESET, and press the ENTER button.
The preset menu appears.

```
>BRIGHTNESS
 GEOMETRY
```

5 Press the ⇩ or ⇧ button to select BRIGHTNESS, and press the ENTER button.
The brightness preset menu appears.

```
>PRESET-1 :  1
 PRESET-2 :  4
 PRESET-3 :  8
 PRESET-4 : 16
```

6 Press the ⇩ or ⇧ button to select the preset number, and press the ⇦ or ⇨ button to adjust the brightness level.
The brightness level is adjustable in a range of 1 – 16. The higher the level is, the brighter the screen becomes.

Adjusted brightness level

```
 PRESET-1 :  1
>PRESET-2 :  6
 PRESET-3 :  8
 PRESET-4 : 16
```

7 Press the ENTER button.
"SAVE" is displayed for about one second, and the adjusted level is stored in the memory.

Repeat steps **6** and **7** to store up to four different brightness levels in the PRESET 1 to PRESET 4 numbers.

8 To finish the brightness adjustment, press the MENU button repeatedly until the normal display appears in the display window.

Note

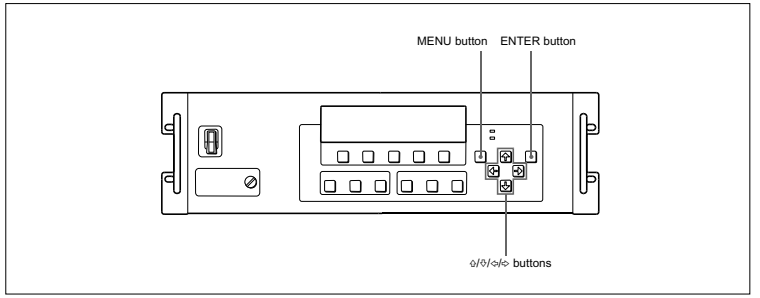
After adjusting the brightness in step **6** above, do not move the cursor to another preset number or press the MENU button before pressing the ENTER button. If you do, the adjusted level is not stored in the memory.

To set to the preset brightness level

See "Selecting the brightness of the screen" on page 19.

Adjusting the Picture on the Screen

When the composite video signal is displayed on the screen, you can adjust the color, hue and sharpness of the picture.
When the component video signal is displayed, you can adjust the color and sharpness only.



1 When the display window shows the normal display, press the MENU button.
The main menu appears.

```
>SIGNAL CTRL      SWITCHER CTRL
 GEOMETRY CTRL    OTHER CTRL
 MONITOR CTRL
 SCREEN CTRL
```

2 Press the ⇩ or ⇧ button to move the cursor (>) to SIGNAL CTRL (signal control), and press the ENTER button.
The SIGNAL CTRL submenu appears.

```
>INPUT-1  INFO       INPUT-2  INFO
 INPUT-1  PICTURE    INPUT-2  OTHER
 INPUT-1  OTHER
```

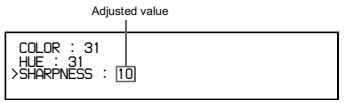
3 Press the ⇩ or ⇧ button to select INPUT-1 PICTURE, and press the ENTER button.
The picture adjustment menu appears.

```
>COLOR : 31
 HUE : 31
 SHARPNESS :  7
```

(continued)

Adjusting the Picture on the Screen

4 Press the ⇩ or ⇧ button to select the item you want to adjust, and press the ⇦ or ⇨ button to adjust it.



Adjustment item	How to adjust
COLOR	Pressing the ⇨ button increases the color intensity; pressing the ⇦ button decreases the color intensity. Adjustable range is 0 – 63.
HUE	Pressing the ⇨ button makes the skin tones greener; pressing the ⇦ button makes the skin tones purpler. Adjustable range is 0 – 63.
SHARPNESS	Pressing the ⇨ button makes the picture sharper; pressing the ⇦ button makes the picture softer. Adjustable range is 0 – 15.

5 Press the ENTER button.
"SAVE" is displayed for about one second, and the adjusted level is stored in the memory.

Repeat steps **4** and **5** to adjust each item.

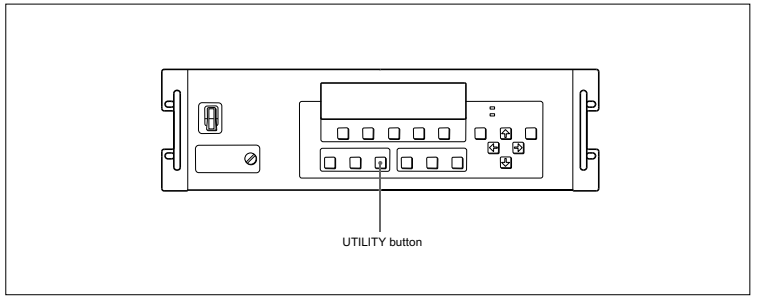
6 To finish the adjustment, press the MENU button repeatedly until the normal display appears in the display window.

Notes

- After adjusting the picture in step **4** above, do not move the cursor to another item or press the MENU button before pressing the ENTER button. If you do, the adjusted level is not stored in the memory.
- The hue cannot be adjusted for the picture input from PAL color sources. In this case, "HUE: – –" appears.

Controlling the Equipment Connected to the ICU

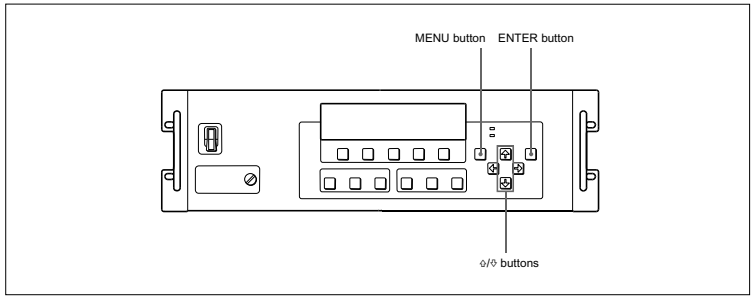
Using the UTILITY button on the ICU controller, you can control the power on/off or other functions of the equipment connected to the EXTERNAL CONTROL connector of the ICU.



Hold down the UTILITY button for more than a second to make contact. The UTILITY button lights.
Hold down the button again to break contact. The UTILITY button goes out.

Getting Information about the Input Signal

You can display information about the currently input video signal in the display window.



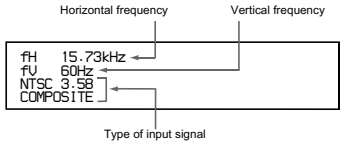
1 When the display window shows the normal display, press the MENU button.
The main menu appears.

```
>SIGNAL CTRL        SWITCHER CTRL
 GEOMETRY CTRL      OTHER CTRL
 MONITOR CTRL
 SCREEN CTRL
```

2 Press the ⇩ or ⇧ button to move the cursor (>) to SIGNAL CTRL (signal control), and press the ENTER button.
The SIGNAL CTRL submenu appears.

```
>INPUT-1  INFO        INPUT-2  INFO
 INPUT-1  PICTURE     INPUT-2  OTHER
 INPUT-1  OTHER
```

3 Press the ⇩ or ⇧ button to select INPUT-1 INFO, and press the ENTER button.
The information about the currently input signal appears.



4 To return to the normal display, press the MENU button repeatedly.

Troubleshooting

If you think you have a problem during operation, check through the following list.

Problem	Cause	Corrective action
The normal display does not appear in the display window of the ICU controller.	ICU is not turned on.	Press the POWER switch on the ICU to ON.
		Hold down the ICU button on the ICU controller for more than a second to turn on the light of the button.
No image is displayed on the screen.	Screen is not turned on.	Turn on the power distribution panel which supplies the power to the screen.
		Hold down the SCREEN button for more than a second to turn on the light of the button.
	The power of the image output equipment is turned off.	Turn it on.
	Image output equipment is not properly connected.	Check the connections.
A part of the image on the screen is not displayed.	A JumboTron display unit or cell is defective.	Consult with qualified Sony service personnel.
	The JumboTron display units are not connected properly.	Check the connection between the units and the ICU.

For the maintenance and adjustment of the JumboTron System, consult with qualified Sony service personnel.

Specifications

JTC-P200 ICU

General

Power requirements
AC 100 – 240 V, 50/60 Hz, 1.4 A
Power consumption
140 W (max.)
Dimensions 482 × 177 × 486 mm (w/h/d)
(19 × 7 × 19 1/4 inches)
Mass Approx.15.8 kg (34 lb 13 oz)
Operating conditions
Temperature: 0°C to 45°C (32°F to 113°F)
Humidity: 30% to 70% (no condensation)
Signal cable length 100 m (328 feet) max.

Input/output

Input
INPUT-1 Composite video input: BNC connector (1), 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
Analog RGB/component inputs: BNC connector (5)
R/R-Y: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
G/Y: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
G with sync/Y: 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
B/B-Y: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
HD/COMP:
Composite sync input:
1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated
Horizontal sync input:
1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated
VD:
Vertical sync input: 1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated

INPUT-2 Analog RGB inputs: BNC connector (5)
R: 0.7 Vp-p ± 2 dB, positive, 75 ohms, terminated
G: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
G with sync: 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
B: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
HD/COMP:
Composite sync input:
1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated
Horizontal sync input:
1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated
VD:
Vertical sync input: 1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated

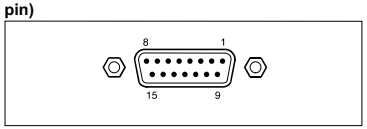
Output SIGNAL OUT: High-density D-sub 15-pin (48)
VIDEO OUT: BNC connector (1), 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
MONITOR OUT: BNC connector (1), 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
Control CONTROL 1/LS, CONTROL 2, CONTROL 3, CONTROL 4: D-sub 15-pin for RS-422 (4)
EXTERNAL CONTROL: D-sub 15-pin (1)

Supplied accessories

Rail mounting bracket (4)
AC power cord (3)
Operation Guide (1)

Pin assignment

EXTERNAL CONTROL connector (D-sub 15-pin)



Pin No.	Signal	Pin No.	Signal
1	FRAME GROUND	9	JT POWER –
2	JT POWER +	10	UTILITY –
3	UTILITY +	11	Reserved 1 –
4	Reserved 1 +	12	Reserved 2 –
5	Reserved 2 +	13	Reserved 3 –
6	Reserved 3 +	14	Reserved 4 –
7	Reserved 4 +	15	Reserved 5 –
8	Reserved 5 +		

Design and specifications are subject to change without notice.

JTC-C200 ICU controller

General

Power requirements
AC 100 – 240 V, 50/60 Hz, 0.13 A
Power consumption
13 W (max.)
Dimensions 481 × 132.4 × 228 mm (w/h/d)
(19 × 5 1/4 × 9 inches)
Mass Approx. 5 kg (11 lb)
Operating conditions
Temperature: 0°C to 45°C (32°F to 113°F)
Humidity: 30% to 70% (no condensation)

Input/output

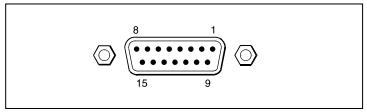
Control CONTROL 1, CONTROL 2: D-sub 15-pin for RS-422 (2)
EXTERNAL CONTROL: D-sub 15-pin (1)
COM 1, COM 2: D-sub 9-pin (2)

Supplied accessories

AC power cord (3)
Operating Instructions (1)

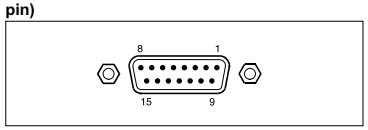
Pin assignment

CONTROL 1 and CONTROL 2 connectors (D-sub 15-pin)



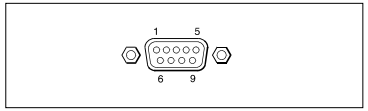
Pin No.	Signal	Pin No.	Signal
1	GND	9	TXD –
2	TXD +	10	RTS –
3	RTS +	11	RXD –
4	RXD +	12	CTS –
5	CTS +	13	DSR –
6	DSR +	14	DTR –
7	DTR +	15	Not used
8	GND		

EXTERNAL CONTROL connector (D-sub 15-pin)



Pin No.	Signal	Pin No.	Signal
1	Reserved	9	ICU POWER
2	ICU POWER	10	Reserved
3	Reserved	11	ICU POWER SENSE –
4	ICU POWER SENSE +	12	Reserved
5	Reserved	13	Reserved
6	Reserved	14	Reserved
7	Reserved	15	Reserved
8	Reserved		

COM 1 and COM 2 connectors (D-sub 9-pin)



Pin No.	Signal
1	$\overline{\text{DCD}}$
2	$\overline{\text{RXD}}$
3	$\overline{\text{TXD}}$
4	$\overline{\text{DTR}}$
5	GND
6	$\overline{\text{DSR}}$
7	$\overline{\text{RTS}}$
8	$\overline{\text{CTS}}$
9	$\overline{\text{RI}}$

Design and specifications are subject to change without notice.

JTA-LS200 ABC sensor unit

General

Power requirements
12 V DC (supplied from the JTC-P200)
Power consumption
1.0 W (max.)
Dimensions 80 × 125 × 56.5 mm (w/h/d)
(3 1/4 × 5 × 2 1/4 inches)
Mass Approx. 0.6 kg (1 lb 5 oz)
Operating conditions
Temperature: 0°C to 45°C (32°F to 113°F)
Humidity: 30% to 70% (no condensation)

Input/output

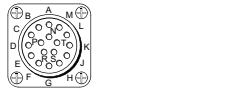
Input/output 17-pin, Round type (2)

Supplied accessories

Mounting bracket (1 set)
Operation Guide (1)

Pin assignment

OUT and IN connectors (17-pin, round type)



Pin No.	Signal	Pin No.	Signal
A	FRAME GROUND	K	RTS –
B	TXD +	L	RXD –
C	RTS +	M	CTS –
D	RXD +	N	DSR –
E	CTS +	P	DTR –
F	DSR +	R	12 V DC
G	DTR +	S	S1-3
H	SIGNAL GROUND	T	S1-2
J	TXD –		

Design and specifications are subject to change without notice.